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 U.S. Army Corps of Engineers

Water treatment plants bringing fresh water to farming communities

By Grant Sattler
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AL KUT, Iraq – The U.S. Army Corps of Engineers is quenching the thirst of three Iraqi farming villages for clean drinking water. USACE is managing construction of 50 cubic meter per hour compact water treatment plants for the communities of Al Bender, Al Maamel and Al Takadoom. The villages lie in rural areas near Al Kut, a city of more than 400,000 on the banks of the Tigris River in Wassit province.

"All three 50 cubic meter plants are of typical design, but site specific," said Maj. Clay Morgan, resident engineer of the Wassit Resident Office.

When completed, each compact water treatment plant includes a submersible pump, gangway and intake piping from a nearby source of surface water, a walled and gated compound, an administrative and storage building, an enclosed chlorinator building, treatment tanks and pumps under a steel roof, a transformer connected to the national power grid, a back up electrical generator and fuel tank, and an elevated water storage tower to pressurize the distribution network to residences.

An elevated tank has advantages over a pressure tank. "During low usage periods you continue to pump into the elevated tank and that treated water pressurizes the network," said Morgan. "You



U.S. Army Corps of Engineers Project Manager Kevin Olsen checks installation of an electric motor during a quality assurance visit to the Al Takadoom compact water treatment plant in Wassit province. (USACE photo by Grant Sattler)



The Al Maamel compact water treatment plant is complete and will provide safe water to an estimated 1,400 people. (USACE photo by Grant Sattler)

are storing water and energy."

The projects range in cost from \$525,000 to \$680,000 with the difference being primarily the distance of the distribution network from the plant to village homes and the number of house connections.

The Al Maamel village water treatment plant began in September 2006 and will be complete in February 2008. "We are testing the chlorination system," Morgan said. "There is hyper chlorination in the distribution system right now." Paid for by the Iraq Relief and Reconstruction Fund the project impacts an estimated 1,400 people.

"The other two, Al Bender and Takadom are two that were requested from the Provincial Reconstruction Development Council and funded by U.S. State Department's Economic Support Fund program...", said Morgan, who has been the Officer In Charge of the Wassit Resident Office of the USACE Gulf Region South district since July 2007. "The Wassit Governate, Provincial Council, and Provincial Reconstruction Development Council made a determination that those villages were going to get compact water units." Construction begun in September 2007 is nearing the halfway mark on both.



Masonry workers complete the exterior finish for the Al Takadom compact water treatment plant. The plant will provide safe water to more than 1,000 residents in the area. (USACE photo by Grant Sattler)



The intake for the Al Bender compact water treatment plant ready for installation of a submersible pump. (USACE photo by Grant Sattler)

Morgan said the scope of work for two of the projects was adjusted within the budgeted amount after more displaced people heard of the plants and decided to build along network lines. "As the population increased along the distribution network, we made changes in distribution in the contract," Morgan said. "We swapped out [a quantity of] large diameter pipe for more house connections...clean water service to more families and made more people happy."

The water treatment plants will also provide employment through the owning Iraqi governmental entity. Although staff requirements are minimal, there will be a need for security and operator/maintainer personnel. Morgan said the system does require periodic maintenance and monitoring. The contractor will operate the system for a period of time after commissioning to ensure any deficiencies are resolved and then operate for a period of time to train the appointed personnel.

"They are powerful projects and they are bringing in essential services" Morgan said. "The concern is to make sure that they are taken care of ...we'd like to see it running a year, two years...five, 20 years down the road, the construction is of that

quality. It's just based on the operator and the maintenance plan and program, from the government or that village, however it's determined who is responsible to operate it to make sure that they are doing their utmost... changing filters, making the minor repairs that are needed to keep things going."

Construction of the plants is going well, Morgan said, citing the benefits of using a local construction company and the dedicated efforts by our Iraqi project and quality assurance engineers. "It's always better to have a contractor from the area," he said. "They are more responsive; they are known and have a reputation to maintain."

Morgan said three additional compact water treatment plants are in the approval process for ESF funding for next year in Wassit province.

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